MEMORANDUM

To: Trustee Finance Committee

From: June P. Youatt
       Satish Udpa

Subject: 2016-17 Appropriation Request and Capital Outlay

RECOMMENDATION
The Trustee Finance Committee recommends that the Board of Trustees adopt Michigan State University's 2016-17 Operating and Capital Outlay Request, including components for the University General Fund, AgBioResearch, and the Michigan State University Extension.

RESOLUTION
BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby adopts the attached 2016-17 Appropriation Request and Capital Outlay.

BACKGROUND
The Appropriation Request provides parameters that will guide development of MSU requests through the 2016-17 appropriation cycle. Action on the Request authorizes the Administration to respond to Michigan Department of Management and Budget reporting requirements.

Attachments

cc: Trustee Policy Committee, L. Simon, B. Beekman, M. Burnham, R. Noto, D. Byelich, B. Johnston
Michigan State University
2016–17 Appropriation Request

As a vital engine for Michigan’s prosperity, Michigan State is committed to creating value for its students and partners. Through diversifying revenue streams and focusing its resources on key mission-specific initiatives, MSU is providing access and opportunity to both undergraduate and graduate students, for residents of Michigan and students from around the world.

Michigan State’s ongoing achievements place it among the top-100 global universities. Over the last decade, state disinvestment in higher education challenged existing operational practices, requiring MSU to prioritize academic programs and support services to adjust to the new reality of appropriations funding.

Having confronted economic challenges without compromising its values and standards, MSU now is poised to seize opportunities presented by the evolving operating environment. President Lou Anna K. Simon’s Boldness by Design initiative, framed in 2005, aligned MSU’s collective work toward five imperatives, each founded on the institution’s core values of quality, inclusiveness and connectivity.

University leaders are building the framework to be Bolder by Design, challenging MSU to once again lead the transformation of higher education and, as part of the process, adding a sixth imperative: becoming a model high-performance organization. Bolder by Design establishes the foundation for MSU to continue its role as the world’s preeminent land-grant university.

MSU is a vital engine of Michigan’s prosperity, leaving an annual $5.4 billion economic footprint. MSU has a presence in every Michigan County, training physicians at 38 partner hospitals, operating 14 AgBioResearch centers from Benton Harbor to Saginaw to Escanaba. After graduation, Spartans become leaders, entrepreneurs, volunteers, and contributors to their communities, fulfilling the intent of our 19th-century founders. Currently, over 240,000 alumni reside in the state of Michigan. Additionally, Michigan State University has positioned itself to provide the state with the type of graduates employers demand and who drive economic growth in the 21st century. In fact, over the last ten years STEM-based student credit hours have increased by approximately 38 percent while non-STEM SCH are approximately flat over the same period. Additionally, STEM credit hours are over 50 percent more expensive to conduct than non-STEM
credits to due instructional laboratory requirements and other differences in the instructional model.

MSU is an institution founded on a dynamic balance between the theoretical and the practical, discovery and dissemination, knowing and being. Standing among the 60 great research institutions comprising the Association of American Universities, Michigan State is yet differentiated in its fidelity to each of its core values: quality, inclusiveness and connectivity. They are tightly linked and demonstrated in myriad ways, from the university’s roster of top scholars and programs to its diverse campus community to its many forms of local, regional and international engagement.

The world’s greatest challenges lie where MSU always has been a research and practice leader, and these are where we will increasingly focus our vast capabilities:

- food systems, safety and plant science;
- water quality, security and management;
- energy and matter, including nuclear physics, advanced materials and bioenergy;
- computational science – Big data
- sustainability, whether environmental, economic or societal;
- health, from bio-medical engineering to family medicine and translational research
- renewable resources, including agricultural products, biomass and energy.

With MSU’s broad and interdisciplinary capabilities, these areas involve not just the science and discovery necessary to advance cutting-edge knowledge, but innovative application through our expertise in outreach and engagement, communications, value chains, social and political sciences and other competencies.

**Strategic commitment**

Within the context of Bolder By Design, planning includes both reinforcement of long-term principles and testing selected innovations.

- Sustain MSU’s value proposition of programmatic excellence and opportunity for Michigan residents
- Expand economic impact through both undergraduate and graduate programming including significant economic multipliers, spurring future state growth
• Advance the common global good as one of the world’s top research universities continuing to build on MSU’s pioneer land-grant commitment to find solutions to the most critical challenges facing individuals and troubled communities in Michigan and beyond
• Further education and research across STEM disciplines including science, technology, mathematics and engineering, sustaining broad academic excellence at both the undergraduate and graduate levels
• Within academic programs, integrate technology and teaching/learning, support interdisciplinary study, close graduation gap, and foster a healthy campus
• Target MSU first-time undergraduate enrollment at 7,900 for Fall 2016 to optimize instructional faculty and facility usage
• Strengthen university initiatives, including food systems & plant sciences, health science disciplines including biomedical engineering, computational sciences emphasizing existing strengths in biology, food and food chain security, population and the environment including food, water, and energy,
• Keep MSU faculty at the leading edge of teaching and research while working with businesses and communities across the state to innovate and develop entrepreneurial environments that bolster the Michigan economy and help create sustainable prosperity
• Partner with numerous state and regional universities and community colleges
• Respond to changing financial circumstances with ongoing improvements in efficiency and effectiveness throughout the institution, including constraining personnel costs
• Assess performance across the institution against relevant benchmarks and metrics

MSU funding

Consistent with the joint-request from the Michigan Association of State Universities, MSU requests recurring FY16 increases to appropriations support for the general fund, MSU AgBioResearch (MABR), and MSU Extension (MSUE) of 4.3 percent, the minimum necessary to restore funding to 2011 levels. Further, MSU also requests that existing caps on tuition and fee rates be removed to allow for investment in the people and programs necessary to partner with the Governor in achieving the goal of 60 percent of state residents possessing a high quality degree. The university operates within the context of
long-term underfunding and growing enrollment demand, particularly within high-cost fields, such as the STEM disciplines. It is essential that stable, predictable funding be provided to maintain higher quality academic programs and opportunity for Michigan students and to enhance the strategic strengths of MABR and MSUE.

State reductions in higher education appropriations through FY16 resulted in reductions to MSU appropriations of approximately 18 percent since FY02, representing a cumulative loss of over $500 million in operational resources over 14 years. Over the last ten years through FY15, Michigan ranked 48th among the states in changes to appropriations. For FY16, about 21 percent of general fund revenues are budgeted from appropriations, and approximately 71 percent from tuition and fees, with the remainder composed primarily of investment income and indirect cost recovery. This compares to FY06, when about 37 percent was budgeted from appropriations and approximately 54 percent from tuition and fees.

MSU is accountable to Michigan citizens. It has the highest number of in-state students among Michigan public universities. Michigan is always the first beneficiary of MSU’s graduates, as the university delivers high-quality academic programs and global networks with Michigan applications. MSU’s acclaimed academics include 20 graduate and 9 undergraduate programs ranked in the top 20 nationally, with nine ranked in the top 5. Graduate programs in Nuclear Physics, Elementary Education, Secondary Education, Organizational Psychology and Rehabilitation Counseling are all ranked number one in their respective fields. Underpinning MSU’s acclaimed programs is a pedagogy that stresses both theoretical and experiential learning. In fact, over 2,500 undergraduates participate in study abroad annually, making MSU one of the top universities nationally for international education, and, by the time they graduate, 1 in 4 undergraduates will have participated in a research experience.

MSU continues to be a leader in creating knowledge for the 21st century. As such, it is recognized as one of the world’s top 100 universities. MSU received $583 million in external funding during FY15, of which over 50 percent was research-related. Research and scholarly work of this magnitude has a significant impact on the Michigan economy, both in expenditures and jobs. MSU actively pursues economic growth through programs across the university. An example is the MSU Center for Community and Economic Development, which provides training and consulting services to Michigan communities.
The university is also a key player in the development of Michigan's health care and life science sector, including educating both nurses and physicians. MSU is involved in partnerships with dozens of hospitals to train physicians, while bringing federal graduate medical education funding into those communities. The College of Human Medicine has campuses in seven communities, including Grand Rapids and Traverse City; the College of Osteopathic Medicine has campus locations in East Lansing, Detroit, and Macomb County.

MSU has localized the diverse resources for business outreach, technology commercialization, and new business formation under one roof: the MSU Innovation Center. The Innovation Center is MSU's single site for economic value creations from MSU innovations. Entrepreneurs and established businesses work with Business-CONNECT, MSU's portal for engagement with the business community; they access patented technologies at MSU Technologies (the university's technology transfer office); and they engage in company creation and investment at Spartan Innovations L3C, which focuses on creating sustainable MSU start-ups.

Additionally, the Product Center at MSU helps Michigan entrepreneurs develop and commercialize high-value, consumer-responsive products and businesses in the agriculture, natural resources, and bioeconomy sectors. Since it began in 2004, the Product Center has provided a wide range of venture development services to more than 3,500 clients. It has assisted in the formation of more than 1,800 ventures for new and existing firms, leading to the realized launch or expansion of 455 businesses across Michigan that generated more than $328 million in annual sales and the creation/retention of approximately 1,949 jobs.

Funding directly impacts the students MSU is able to attract and retain. Entering student ACT scores are up over the last ten years. MSU has 25 academic programs in the top 20 nationally. Five graduate programs and one undergraduate program rank number 1. At MSU, 92 percent of graduating seniors who responded last year to the National Survey of Student Engagement rated MSU's academic quality as good or excellent, and 86 percent said they would attend MSU if they had to do it over again.

MSU's six-year graduation rate for the class of 2014 was 79 percent, which is 11 percentage points higher than the rate predicted by U.S. News & World Report based on incoming student characteristics. MSU’s plus-11 rate is the second-highest in the Big Ten, exemplifying MSU’s willingness to take risks when investing in a student’s
potential. Moreover, it is a measure of quality that demonstrates how well MSU is using its educational resources to graduate students, even in difficult budgetary times.

MSU operations are consistently focused on sustainably creating sustainable value, through efficient and effective processes and practices. In spring of 2015, MSU announced a plan to stop burning coal by the end of 2016, replacing it with a combination of natural gas and renewable sources. To date, MSU’s energy strategies have reduced greenhouse gas emissions by 18 percent and have led to over $1 million in annual savings while simultaneously diminishing projected long-term costs and risk exposure. Beyond energy, MSU’s healthcare costs have increased below national indexes each of the last five years resulting in lower premium increases for our faculty and staff and their families. Finally, MSU routinely leads peers in custodial and grounds maintenance metrics and has the lowest per-unit energy costs among participating AAU public land-grant universities.

**Financial aid: assuring opportunity**

MSU is committed to assuring access to higher education for Michigan students. Over 76 percent of undergraduate students and over 71 percent of all students come from Michigan’s 83 counties. In fact, MSU’s resident undergraduate focus forgoes over $80 million in tuition revenue annually when compared with other Big Ten institutions. For FY16, MSU continued to increase financial aid at a rate greater than increases to tuition with approximately $127.0 million budgeted in financial aid programs, representing a total increase of approximately 5.6 percent for one year and 23 percent over five years.

In FY15, 65 percent of all MSU students received some form of financial aid and 21 percent of undergraduate students received a Pell Grant. Additionally, MSU Pell population approximates 8,800 students annually and routinely exceeds Carnegie peers by over 3,500 students. In addition to high-need students, MSU carefully monitors the distribution of student-family income and focuses significant aid resources at the students with family income just above Pell levels. The outcomes of these efforts are evidenced in the debt metrics for MSU’s students. On average, fewer MSU students graduate with debt (46%) than both state (63%) and national (69%) peers. Of those graduating with debt, MSU students have approximately $3,000 less debt than national peers and $4,000 less than state peers.
As the nation's pioneer land-grant university, MSU is especially committed to working with Michigan stakeholders to meet the needs of our agriculture and natural resources stakeholders through a variety of means including a programmatic presence in communities across the state. With annual economic impact of more than $102 billion, Michigan’s food and agriculture sectors are a leading force for economic stability in Michigan. Agribusiness is among the fastest growing economic sectors in the state, and MSU AgBioResearch and MSU Extension contribute to Michigan’s economy with significant research, educational programs and a community presence to boost economic development and growth related to agriculture and natural resources, community vitality, entrepreneurship and career preparation for young people. Therefore, as noted above, it is essential that full recurring support be provided to both MSU AgBioResearch and MSU Extension to restore appropriation levels to that of 2009, with necessary adjustments to inflation.

MSU AgBioResearch is focusing on key research areas in:
- Food, energy and the environment
- Natural resources policy and management
- Enhanced profitability in agriculture and natural resources
- Secure and safe food systems
- Families and community vitality

MSU Extension is focusing on:
- Developing youth and communities
- Ensuring safe and secure food
- Ensuring strong communities
- Keeping businesses strong
- Keeping people healthy
- Making the most of our natural assets
- Supporting food and agriculture

In an era of significantly reduced state funding and increasing expenses, MSU continues to build on its partnerships with local, state and federal government agencies and with the private sector while maintaining its core values and commitments. Leadership continues to
balance increasing the value of our work while ensuring it matches the high quality expected of MSU. We engage our partners, our students, our faculty and the stakeholders and communities we serve, both locally and globally, to shape a shared future of sustainable prosperity.

**Facility for Rare Isotope Beams**

The Facility for Rare Isotope Beams (FRIB) is a critical project for American science and the State of Michigan. FRIB not only will keep MSU on the cutting edge of nuclear science, but also will ensure the training of the nuclear scientists of tomorrow while bolstering the economies of mid-Michigan and the entire state. FRIB will cost $730 million to design and build. In FY14, the state made a commitment to bond and service the community cost share of $94.5 million. Construction began in 2014 and will be completed by 2022, with current forecasts anticipating early completion in fiscal year 2021. FRIB is projected to create hundreds of jobs in Michigan, while bringing in more than $1 billion of economic activity to Michigan in the next 10 years. MSU looks forward to continuing its partnership with the State of Michigan to assure the successful completion of this project.

MSU continues to work with the U.S. Department of Energy Office of Science (DOE-SC) in developing FRIB and continues to manage against the annual plan prepared by MSU and approved by DOE-SC. On August 1, 2013, the DOE-SC approved Critical Decisions (CD) 2-3a, baselining the scope, cost and schedule, and authorizing the start of civil construction. The project received CD-3b approval (start of technical construction) in August 2014 with project progress well in advance of DOE-SC targets, a necessary approval for assuring fiscal year 2021 completion.

The centerpiece of the new user facility will be a superconducting linear accelerator that will increase dramatically the reach of rare-isotope research in the United States. The accelerator will produce isotopes that normally exist only in the most extreme environments in the universe and will expand the usefulness of isotopes in a broad range of applications from modeling stars to understanding the workings of nanoscale electronic devices, opening the door for critical applications in fields such as medicine, homeland security, and industry.
Capital outlay

The capital outlay requests support programs that have strong national reputations, expanding research bases, and high enrollment demand that will sustain the university and its contributions to Michigan. Funding of these requests will provide economic development in the state, now and in the long term. Our capital outlay top priority is the construction of a STEM teaching and learning facility to align with State and national priorities.

Over the past ten years credit hours in STEM and STEM related courses at MSU has increased by 38 percent. Construction of a new instructional facility focused on supporting teaching and learning in science, technology, engineering, and math (STEM) disciplines is necessary to continue this programmatic direction. Such a facility would address the continued State and national priority to educate increasing numbers of students in STEM disciplines. A new STEM Teaching and Learning facility would include modern wet bench teaching laboratories that incorporate active learning principles, foster cross-disciplinary teaching and learning, and support developing and evolving changes in curriculum and its delivery. The facility would bring together a number of teaching laboratories that are currently dispersed across campus to create a central hub for STEM teaching and learning.

New construction

New construction is needed to support high-priority instructional and research programs ranging from the sciences to academic/administrative technology. As detailed above, MSU’s Capital Outlay request of a STEM Teaching and Learning facility is a priority for advancing STEM education on MSU’s campus. The facilities are needed to support current and future programmatic initiatives in the STEM disciplines including biomedical, biological and engineering sciences, computation and data sciences, water and energy and economic development of Michigan, now and in the long term.

Renovations and additions

Requests for renovations and/or additions address extensive programmatic and maintenance improvements required by buildings previously funded by the state. Renovations are needed to reconfigure space in order to support the work of the programs housed in those facilities, upgrades to building systems and current codes, and provisions for accessibility. In other cases, due to program requirements, condition, age and long-term value, renovation of a building is warranted.
Requests for major renovations and/or additions include the Plant Sciences-Bioeconomy, Biological Sciences, and Music facilities.

**Major systems replacement**

Current forecasts anticipate general fund facility, instructional and infrastructure needs of approximately $260 million over the next five years. In view of the extensive facility needs it faces, MSU has had to draw upon an increasing amount of internal university resources to address the most critical facility maintenance and programmatic requirements. Self-funding these capital improvements is not sustainable without impact on other programs.

The university seeks funding for more targeted and specific building systems maintenance and instructional space facility upgrades. Examples of systems in need of repair or replacement include roofing, windows, electrical, mechanical, chiller, refrigeration, steam, fire, security and barrier-free access. Instructional space upgrades today extend beyond simply replacing room infrastructure and furnishings, and include new and expanded room layouts and more sophisticated technology installations to support a range of active learning environments.